

**METODOLOGI UMUM PENYELIDIKAN REKA
BENTUK BERTOKOK PENILAIAN DALAMAN
DAN LUARAN: KAJIAN KES SISTEM
PENDAFTARAN SISWA INDONESIA**

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UNIVERSITI UTARA MALAYSIA
MEI 2010**

**METODOLOGI UMUM PENYELIDIKAN REKA BENTUK
BERTOKOK PENILAIAN DALAMAN DAN LUARAN: KAJIAN
KES SISTEM PENDAFTARAN SISWA INDONESIA**

Tesis Dikemukakan Kepada Kolej Sastera dan Sains,
Universiti Utara Malaysia Sebagai Memenuhi Syarat Pengijazahan
Ijazah Doktor Falsafah

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KEBENARAN MENGGUNA

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ABSTRAK

Motivasi kajian ini didorong oleh industri aplikasi dan kandungan yang masih sangat terhad khususnya dalam domain pendidikan yang mengakibatkan rendahnya penerapan sistem maklumat (SM) yang berkualiti dalam pengurusan pendidikan di Indonesia. Lebih spesifik, adopsi terhadap pendekatan pembangunan sistem yang sempurna masih sangat rendah di Indonesia. Kenyataan ini disokong oleh beberapa rujukan termasuk satu contoh SM pendaftaran siswa (iaitu e-PSB) yang didapati tidak mempraktikkan kitaran pembangunan yang menitikberatkan penilaian pengguna sehingga pelbagai ralat sistem direkodkan. Selain itu, kejayaan pelaksanaan SM tersebut juga didapati rendah kerana tidak memenuhi kehendak pengguna dan gagal memberi servis berkualiti. Tambahan pula, sorotan kajian menunjukkan penilaian SM sedia ada tidak menghubungkan faktor kepuasan pengguna, persepsi pengguna, dan kualiti servis sistem.

Susulan daripada itu, matlamat utama kajian ini ialah mencadangkan model pendekatan pembangunan SM yang menitikberatkan penilaian kepuasan dan penerimaan pengguna serta kualiti servis sebagai faktor-faktor penilaian pengguna dalaman dan luaran. Matlamat dicapai dengan membentuk tiga objektif iaitu (1) membina satu prototaip sistem pendaftaran siswa sebagai kes kajian di Indonesia, (2) melaksanakan penilaian dalaman dan luaran sistem yang dibina dalam persekitaran yang sebenar, dan (3) mengenal pasti hubungan antara faktor-faktor yang berpengaruh terhadap kepuasan, penerimaan dan kualiti servis sistem tersebut.

Kajian ini melalui pendekatan kuantitatif dan penyelidikan reka bentuk yang menekankan pembangunan artifak. Tiga fasa diikuti iaitu (1) fasa perancangan dan analisis awal, (2) fasa pembangunan model dan artifak, dan (3) fasa pelaksanaan, pengumpulan data, dan penilaian. Pengumpulan data menggunakan instrumen penilaian yang dibahagikan kepada penilaian dalaman dan luaran. Penilaian dalaman diasaskan daripada *Technology Acceptance Model* (TAM) dan *Questionnaire for User Interaction Satisfaction* (QUIS). Manakala penilaian luaran didasarkan daripada *Service Quality* (SERVQUAL). Seramai 471 responden terlibat di mana 462 dari Bandar Banjarmasin Kalimantan Selatan Indonesia dan 9 orang pakar SM. Ujian t, ANOVA, korelasi dan regresi digunakan dalam pengujian sebelas hipotesis yang dibina.

Faktor penilaian dalaman dibahagikan kepada persepsi kebergunaan (PK), persepsi kemudahan (PKG), dan kepuasan antara muka pengguna (KAP). Sementara penilaian luaran terdiri daripada dimensi kualiti servis (KS), persepsi keseluruhan kualiti servis (PKS), dan kepuasan keseluruhan kualiti servis (KKS). Hasil pengujian hipotesis-hipotesis menunjukkan bahawa (i) PKG dengan PK berhubungan secara signifikan, (ii) PK dengan KAP berhubungan secara signifikan, (iii) PKG dengan KAP berhubungan secara signifikan, (iv) PK dan PKG secara bersama-sama mempengaruhi KAP secara signifikan, (v) KS mempengaruhi PKS secara signifikan, (vi) PKS dengan KKS berhubungan secara signifikan, (vii) KS mempengaruhi KKS secara signifikan, (viii) KS dan PKS secara bersama-sama mempengaruhi KKS secara signifikan, dan (ix) KAP mempengaruhi KKS secara signifikan.

Sumbangan utama kajian ialah cadangan model pendekatan pembangunan SM yang boleh digunakan oleh para pembangun dan penyelidik dalam membina satu SM yang menekankan penilaian penerimaan, kepuasan dan kualiti servis. Selain itu, sistem prototaip yang dinamakan PSB Terpadu dan faktor-faktor penilaian pengguna dalaman dan luaran SM juga memberi sumbangan kepada industri aplikasi di Indonesia khususnya.

ABSTRACT

This study is motivated by the fact that the software application and content industry advancement in Indonesia especially in the educational domain is rather limited. This has resulted in the deployment of low quality Information System (IS) for education management due to a poorly adopted system development approach. The statement is supported by many references including an example of a student registration IS (i.e. e-PSB) which did not focus on user evaluation; therefore has recorded many errors plus failed to provide a quality service; and was found to not practice a proper system development life cycle. Moreover, literature reviews indicate that studies on the evaluation of IS have yet to determine the correlation between user satisfaction, perception and service quality factors.

In regard to the above, the aim of this study is to propose a IS development approach model that pivots on user satisfaction, perception and service quality as the internal and external evaluation factors. In accomplishing the aim, three objectives are formulated; (1) develop a student registration IS prototype as a case study in Indonesia, (2) implement the internal and external evaluation of the prototype in a real setting, and (3) identify influential relationship between the user satisfaction, perception and service quality factors.

Quantitative and design research are the two main approaches followed through in this study. There are mainly three phases, (1) planning and analysis, (2) model and artefact development, and (3) implementation, data collection and evaluation. Data are collected using internal and external evaluation instruments. The internal evaluation is based on the Technology Acceptance Model (TAM) and Questionnaire for User Interaction Satisfaction (QUIS). The external is rooted on the Service Quality (SERVQUAL). Altogether 471 respondents participated where 462 are from Banjarmasin, South Kalimantan, Indonesia and 9 are experts. T-test, ANOVA, correlation and regression analysis are utilized to prove 11 hypotheses.

The internal evaluation factors are divided into perceived usefulness (PK), perceived ease-of-use (PKG) and user interface satisfaction (KAP). Whereas, the external factors are divided into quality service (KS), overall perception of quality service (PKS), and overall satisfaction of quality service (KKS). The hypotheses testing show that (i) PKG and PK are significantly correlated, (ii) PK and KAP are significantly correlated, (iii) PKG and KAP are significantly correlated, (iv) PK and PKG together influence KAP significantly, (v) KS influences PKS significantly, (vi) PKS and KKS are significantly correlated, (vii) KS influences KKS significantly, (viii) KS and PKS together influence KKS significantly, and (ix) KAP influences KKS significantly.

The proposed IS development approach model, which can be utilized by fellow developers and researchers to develop an IS that focuses on the internal and external evaluation factors, is the main contribution of this study. Furthermore, the prototype, that is named as *PSB Terpadu* and the identified relationships between the internal and external factors contribute to the software application industry, specifically in Indonesia.

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SENARAI KEPENDEKAN

%	: Peratus
ADO	: ActiveX Data Object
ANOVA	: One Way Analisis of Variance
ASEAN	: The Association of Southeast Asian Nations
ASPILUKI	: Asosiasi Piranti Lunak Telematika Indonesia
ATM	: Automatic Teller Machine
BAPPENAS	: Badan Perencanaan Pembangunan Nasional
BCM	: Brady and Cronin Model
BSD	: Berkeley Software Distribution
DAO	: Data Acces Objects
DB1	: Database 1
DB2	: Database 2
df	: Degree of freedom (darjah kebebasan)
DFD	: Data Flow Diagram
DHTML	: Dynamic Hyper Text Markup Language
Disdik	: Dinas Pendidikan
EMP	: Empati
e-PSB	: Pendaftaran Siswa Baru secara elektronik
f	: Frekuensi
GMDR	: General Method of Design Research
GOM	: Gronroos Model
H ₀	: Hipotesis Nol
H _a	: Hipotesis Alternatif
HTML	: Hyper Text Markup Language
ICT	: Information Communication and Technology
Iptek	: Ilmu Pengetahuan dan Teknologi
ISV	: Independent Software Vendor
IPTA	: Institut Pengajian Tinggi Awam
ITU	: International Telecommunication Union
JMN	: Jaminan
KAP	: Kepuasan Antara Muka Pengguna
KBL	: Kebolehpercayaan
Kbps	: Kilobit per second
KDNK	: Keluaran Dalam Negeri Kasar
KKS	: Kepuasan Keseluruhan Kualiti Servis
KMO	: Kaiser Meyer Olkin
KS	: Kualiti Servis
KUP	: Keupayaan
MID	: Modul Input Data
MPD	: Modul Pangkalan Data
MPrD	: Modul Proses Data
MPW	: Modul Penerbitan Web

MSA	: Measure of Sampling Adequacy
MUPR Bertokok	: Metodologi Umum Penyelidikan Reka Bentuk Bertokok
MUPR	: Metodologi Umum Penyelidikan Reka Bentuk
MyICMS	: Malaysian Information Communication and Multimedia
NIST	: The National Institute of Standards and Technology
NUASD	: Nilai Ujian Akhir Sekolah Dasar
OS	: Operating System
PBB	: Persatuan Bangsa-Bangsa
PBL	: Pembelajaran
PHP	: Hypertext Preprocessor
PK	: Persepsi Kebergunaan
PKG	: Persepsi Kemudahgunaan
PKS	: Persepsi Keseluruhan Kualiti Servis
PPR	: Paparan (skrin)
PPSB	: Panitia Pendaftaran Siswa Baru
PSB Terpadu	: Pendaftaran Siswa Baru Terpadu
PSB	: Pendaftaran Siswa Baru
R	: Koefisien Korelasi Berganda
r	: Koefisien Korelasi Linear
R^2	: Koefisien Determinasi Regresi Berganda
r^2	: Koefisien Determinasi Regresi Linear
RAD	: Rapid Application Development
RAM	: Reka Bentuk Antara Muka
RDO	: Remote Data Objects
RICE	: Regional IT Center of Excellence
ROM	: Rust and Oliver Model
RSF	: Responsif
RSQS	: Retail Service Quality Scale Model
SD	: Sekolah Dasar
SERVQUAL	: Service Quality
Sig.	: Signifikan
SM	: Sistem Maklumat
SMA	: Sekolah Menengah Atas
SMAN	: Sekolah Menengah Atas Negeri
SMK	: Sekolah Menengah Kejuruan
SMKN	: Sekolah Menengah Kejuruan Negeri
SMP Terbuka	: Sekolah Menengah Pertama Terbuka
SMP	: Sekolah Menengah Pertama
SMPN	: Sekolah Menengah Pertama Negeri
TAM	: Teknologi Acceptance Model
TAM2	: Teknologi Acceptance Model 2
TAM3	: Teknologi Acceptance Model 3
TBS	: Tindak Balas Sistem
TIMSS	: Trends in International Mathematics and Science Study

TKS	: Teori Kognitif Sosial
TM	: Teknologi Maklumat
TRA	: Theory Reasoned Action
TRM	: Terminologi dan Maklumat
UK	: United Kingdon
UNCED	: United Nations Conference on Environment and Development
UNDP	: United Nation Development Program
UNESCO	: The United Nations Educational, Scientific and Cultural Organization
US	: United States
USA	: United States of America
UTAUT	: Unified Theory of Acceptance and Use of Technology
VB	: Visual Basic
WSIS	: World Summit on the Information Society

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BAB 1

PENDAHULUAN

1.0 Motivasi Kajian

Kepesatan pembangunan di Indonesia dalam abad ini menitikberatkan aspek-aspek pemanfaatan Teknologi Maklumat (TM). Dalam rangka mengikuti perkembangan TM yang pantas dan pelaksanaan otonomi daerah yang sudah bermula hingga hari ini maka Negara Indonesia sebagai salah satu negara yang berpotensi besar untuk maju, tentunya tidak ingin ketinggalan dengan negara-negara yang ada di rantau Asia Tenggara.

Namun, teledensiti, sebuah angka untuk mengukur taburan infrastruktur Teknologi Maklumat dan Komunikasi (ICT) misalnya masih menunjukkan angka 11 – 25% untuk bandar besar, dan di pinggir pedalaman 0.2%. Masih terdapat lebih kurang 43,022 desa tanpa kemudahan telefon (64.4% dari 66,778 desa). Taburan infrastruktur telekomunikasi pula ialah

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